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Exploring pathways into and out of amphetamine type stimulant use at critical turning points: a qualitative interview study

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ABSTRACT

Amphetamine Type Stimulants (ATS) are increasingly used drugs globally. There is limited evidence about what shapes ATS use at critical turning points located within drug using pathways. Using turning point theory, as part of a life course approach, the ATTUNE study aimed to understand which social, economic and individual factors shape pathways into and out of ATS use. Qualitative, semi-structured interviews ($n = 70$) were undertaken with individuals who had used ATS, or had been exposed to them at least once. Our findings show that turning points for initiation were linked to pleasure, curiosity, boredom and declining mental health; increased use was linked to positive effects experienced at initiation and multiple life-stressors, leading to more intense use. Decreased use was prompted by pivotal events and sustained through continued wellbeing, day-to-day structure, and non-using social networks. We argue that the heterogeneity of these individuals challenges stereotypes of stimulant use allied to nightclubs and 'hedonism'. Further, at critical turning points for recovery, the use of services for problematic ATS consumption was low because users prioritised their alcohol or opioid use when seeking help. There is a need to develop service provision, training, and better outreach to individuals who need support at critical turning points.

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Amphetamines; ecstasy; initiation; desistance; treatment; qualitative

Background

Amphetamine type stimulants (ATS), such as amphetamine, methamphetamine, and 3,4-Methylenedioxy methamphetamine (MDMA), are the second most commonly used class of illicit drugs globally, after cannabis (European Monitoring Centre for Drugs and Drug Addiction, 2018). In 2018, lifetime prevalence of ATS use was estimated at 13.5 million (4.1%) for MDMA, and 11.9 million (3.6%) for Amphetamines amongst 15–64 year

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olds in the European Union (European Monitoring Centre for Drugs and Drug Addiction, 2018).

ATS impact directly on the central nervous system, causing neurotransmitters to increase activity and release high levels of dopamine (Teixeira-Gomes et al., 2015). This generates a pleasurable emotional response for the user, which is linked to improved mood and increased energy (Ilieva & Farah, 2013). However ATS consumption, particularly heavy use, can negatively affect individuals through induced neurotoxic effects (Boshears, Boeri, & Harbry, 2011; Heyman, 2013) which are linked to high blood pressure, paranoia, seizures and psychosis (Clinical Guidelines on Drug Misuse and Dependence Update 2017 Independent Expert Working Group, 2017; Teixeira-Gomes et al., 2015). It is estimated that drug misuse in the UK costs around £10.7 billion a year, with 54% of this diverted to drug-related crime, 28% linked to drug-related deaths, 10% on enforcement, and 8% on health services (Public Health England, 2017). Prevalence of methamphetamine use remains relatively low in the UK compared to other parts of Europe (Public Health England, 2017), with policy to reduce illicit and other harmful drug use currently focused on other amphetamine type substances such as speed, ecstasy and mephedrone (Home Office, 2017). At present, there is limited understanding of how best to prevent and treat harmful ATS use (Ciketic, Hayatbakhsh, Doran, Najman, & McKetin, 2012; Minozzi, Saulle, De Crescenzo, & Amato, 2016), or what critical turning points influence different pathways of ATS use over time (Alm, 2017; Beynon, 2009; Harris & Rhodes, 2018; Laub & Sampson, 1993; O'Donnell et al., 2018; Wojciechowski, 2018).

This paper locates substance use, and in particular, the critical turning points that shape trajectories of consumption, within a wider socio-cultural context. As Maher and Dertadian write, 'drug use and drug dependence are social processes inseparable from the social and political contexts in which they occur' (Maher & Dertadian, 2017, p. 167). In their narrative review, they bring together findings from key qualitative studies in this field to challenge biomedical models and addiction-as-disease perspectives which frame drug use as pathological (Maher & Dertadian, 2017). In our paper, we also adopt this relational approach, to understand and interpret pathways of substance use as a social process that is culturally and historically located (Reinarman, 2005). By exploring participants' perspectives on which factors have shaped differing pathways of ATS consumption, we seek to better inform public health responses to drug use and to challenge biomedical models of addiction (Dwyer & Moore, 2013; Reinarman, 2005; Seddon, 2006, 2011). These kinds of insights help to identify optimum moments for intervention, prevention and treatment, and ensure better informed public health policy decisions (Measham & Stevens, 2014; Seddon, 2011).

A systematic review and synthesis of international qualitative literature conducted by O'Donnell et al. highlighted particular gaps in the current evidence base around which turning points lead to increased ATS use, or what can support decreased consumption or desistance (O'Donnell et al., 2018). This review evaluated and synthesised empirical evidence from studies which focused on a person's experiences of ATS across their lifetime, 'for clues to current patterns of health and disease' (Teruya & Hser, 2010). The European ATTUNE study responds to this particular evidence gap, and aims to understand which individual, social and environmental influences shape critical turning points in individuals' ATS drug pathways across their life course (Rosenkranz et al., 2019). Conducted in the UK, Germany, Poland, Czech Republic and the Netherlands, the study used a

sequential, exploratory mixed-methods design, comprising qualitative interviews followed by structured questionnaires with ATS users and non-users.

This paper focuses on findings from the English qualitative interviews only, focusing on key turning points along this drug using journey, namely initiation, increased use and decreased use or abstinence. At the outset, we acknowledge that these pathways are iterative rather than linear, and that turning points are numerous and bi-directional (Schinkel, 2019). Moreover, we argue that turning points within the life course also shape a person's trajectory into and out of ATS use (Carlsson, 2012; Laub & Sampson, 1993; Schinkel, 2019). Thus, the impact of turning points on a person's substance use across the life course are explored here through critical moments such as parenthood, declining mental health and relationship breakdown (Schinkel, 2019; Teruya & Hser, 2010), in a socio-political context of austerity (Advisory Council on the Misuse of Drugs, 2017; O'Gorman, Driscoll, Moore, & Roantree, 2016). Whilst our findings endorse some of the known turning points shaping pathways into and out of ATS use, such as past trauma and hitting 'rock bottom', we also highlight less known social, individual and environmental factors that motivate drug use pathways. As Schinkel notes, turning points are not bounded, singular events and can occur over long periods, whilst intersecting with other life events (Schinkel, 2019). Schinkel's work emphasises the 'complexity of changes in people's lives and how such changes have meaning in and of themselves, as well as impacting on their desistance' (Schinkel, 2019, p. 383). She argues that turning points are not binary conditions and can be experienced both positively and negatively depending on 'changes over time' (2019, p. 383). Like Schinkel's study, our research also disrupts the construction of turning points as binary experiences, and it builds on this conceptually to emphasise the complexity of pathways into and out of ATS use.

Methods

Qualitative methods were chosen for their potential to provide rich insights into the socially situated, and often hidden, practice of drug use (Maher & Dertadian, 2017). Semi-structured interviews with ATS users and non-users allowed us to explore individual experiences of, and perspectives on, pathways of ATS consumption over time.

Purposive sampling methods were used to identify six distinct groups of participants (see Table 1). Participants resided in North East England, were 18 years or older, and first used/had the opportunity to use ATS at least five years previously to ensure that participants were adequately able to reflect on their consumption over time. Participants self-reporting lifetime opioid dependency and/or drug treatment experience were limited to no more than half of the sample, to avoid overlaps between pathways to heroin use. Participants were mainly recruited via relevant organisations (homeless charities, women support groups, housing associations, student unions). Individuals were encouraged to share information about the study with other potential participants in their social networks; some were recruited into the study via snowballing methods, particularly amongst homeless populations and friendship networks that would be otherwise inaccessible. Recruitment continued until sampling criteria were met for diversity in ATS use, age, gender, and socio-economic status of participants.

Three authors undertook the interviews: one female (MA) and two male researchers (LS, WM). Interested individuals were given an information leaflet and the opportunity

Table 1. Characteristics of sample.

	Total (n)	Severity of Dependence Scale SDS score (m)	Male (n)	Female (n)	Age m (range)
Group 1 (Dependent: used ATS at least on 10 days in past 12 months.)	12	7.6	6	6	37.17 (21–52)
Group 2 (Remitted, dependent: used ATS at least on 10 days within one year in the past, but not past 12 months)	14	6.6	8	6	35.36 (23–62)
Group 3 (Frequent, non-dependent: current or past frequent ATS use on at least 10 days within one year but no ATS dependency)	9	1.6	5	4	32.56 (19–50)
Group 4 (Remitted, frequent non-dependent: intensive past ATS use but no dependency; no ATS use in past 12 months, but before they have used ATS at least on 10 days within one year)	13	2.1	5	8	30.85 (23–42)
Group 5 (Infrequent: used or still use ATS on a non-frequent level; less than 10 consumption days within one year in the past, or within past 12 months)	11	1.3	6	5	26.55 (20–40)
Group 6: (Exposed, non-user: never used but have been exposed to ATS; been present while friends/acquaintances consumed ATS)	11	0	3	8	30.4 (21–45)
Total	70	3.4 (m)	33	37	32.21 (19–62)

to ask questions about the study. If the person was willing, able and eligible to participate, written informed consent was obtained. Participants then completed a brief screening exercise, which allocated them to the appropriate group, and we assessed dependency using the appropriate Severity of Dependence Scale for either current or past ATS use (Gossop et al., 1995). The appropriate topic guide was used to focus interviews: guide A for ATS use; guide B for exposed non-use. Questions and follow-up probes explored issues relating to family, physical and mental health, alongside critical turning points; and key life events and substance use were tabulated. Interviews took place between February and July 2017, were audio recorded and lasted 41 min on average. All participants were given a £10 shopping voucher by way of thanks for their time.

Interviews were transcribed verbatim, and entered into *NVivo 11* to support data management and analysis. Data were analysed using the Framework Approach (Pope, Ziebland, & Mays, 2000) following a five step process: (1) familiarisation; (2) identifying a thematic framework; (3) indexing; (4) charting; (5) mapping and interpretation (Ritchie & Spencer, 1994). Following reading and re-reading of the transcripts, a broad coding framework based on the study aims and objectives was developed. This initial framework was piloted on eight transcripts, refined via discussion, before being applied to the full dataset. Analysis was iterative and progressive, developed through memos, summaries, mapping exercises, and discussions across the team in study meetings. To ensure analytic rigour, the quality of analysis was assessed via reference back to original cases, persistent observation of phenomena, inconsistent cases, and running queries in *NVivo* to check consistency and sensitivity (Pope et al., 2000).

Ethical approval was granted by Newcastle University, Ethics Committee (REF: 01204/2016).

Participant characteristics

A balanced sample of men and women was achieved across all groups except amongst exposed non-use (see Table 1). Individuals who had dependent or remitted dependent use, and those who used frequently in the past, reported trying a similar range of illicit substances, including heroin. No participants reported using ATS as their first ever substance. Excluding use of alcohol and cigarettes, only four participants reported using ATS exclusively in their lifetime, with the vast majority (56) using ATS alongside a range of other substances. The mean age for first time ATS use was 17 years old. Across dependent and remitted use and ex-frequent and infrequent use, amphetamine (i.e. speed) was the most frequently used substance. Intravenous (IV) methods of ATS consumption were only reported amongst individuals who were dependent or remitted dependent, and those who used frequently in the past. With the exception of non-using participants, over 50% of participants reported living amongst the 20% most deprived neighbourhoods in England.

Findings

The following sections discuss the key themes that emerged at critical turning points in a person's drug use trajectory.

Initiation

Individual factors related to personal characteristics, such as curiosity and propensity to experiment with drug use (O'Donnell et al., 2018), influenced participants' initiation into ATS use in three main ways, typologised here as '*hedonistic*', '*functional*' and '*self-medicating*'.

A number of participants across all groups reported '*hedonism*' as driving ATS initiation, particularly being curious about the positive effects of taking Ecstasy and synthetic cathinones. Participants expressed a desire for pleasure and excitement, to experiment, and to counteract mundane or negative aspects of their everyday lives.

I loved just the feelings I was getting, just everything, the lovey-dovey buzz. (ATS18, G1-dependent, male)

Just curiosity, isn't it, just starting out? It was nice as well. (ATS03, G2-remitted, male)

These participants were generally unconcerned about the potential risks involved. For others, ATS initiation was prompted for *functional* purposes, as a means of enhancing performance and/or energy levels either at work, whilst offending, or in education. Participants described taking amphetamines to feel more focused during periods of intense stress. Breaking up the monotony of household work, increasing domestic efficiency, against the demands of caring for small children, were highlighted:

I could do things ten times as quickly. It makes you go faster, so, say, I had the cleaning and the dinners to do and all the washing and the ironing, that would take me a full day, it would take about three hours if I had had that. (ATS05, G2-remitted, female)

A further group of participants described how feelings of high social anxiety, low mood, and poor mental health influenced initiation. For these individuals, ATS use was linked to personal coping strategies for mental ill-health (*self-medicating*), providing a means to feel more confident, self-aware, and in control of emotions and situations. As one participant discussed:

I suppose they were helping me to just get through that time, if that makes sense. So the drugs did for me what I couldn't do for me. (ATS03, G2-remitted, male)

Social factors also shaped participants' first experiences of ATS. Being immersed in social networks that were actively involved in ATS use, and where stimulant consumption had become normalised, was viewed as a turning point to try these substances:

Like, you have conversations with people and they go, "Oh, I'm jealous. Oh, it's your first time. Oh, it'll be amazing." (ATS33, G3-frequent, male)

Some participants also reported that a critical turning point occurred when establishing new social networks, for instance, at school, university, or when moving to a new area. Initiating ATS use helped to form new socially cohesive relationships and boost a sense of inclusion, belonging and security.

Environmental factors shaped turning points and influenced first time usage of ATS. Having the opportunity to use ATS within a particular spatial location, coupled with the type of event that was taking place (parties, festivals, or networking), was critical. Repeated exposure and substance availability in these settings added to the opportunities for ATS initiation.

I mean, a night out in X is going to cost you 30 quid. Drugs for a night out will cost you 15 quid tops. (ATS53, G5-infrequent, male)

The low cost compared favourably with the cost of alcohol, and made first time ATS use within the financial means of most participants. The exception was methamphetamine, which was considered expensive, scarce and highly stigmatised in northern England, and not usually a drug of choice for first time ATS users. Few people mentioned the illegal status of ATS as a deterrence to first time use.

Participants who had been exposed to ATS at least once yet chose not to use the drug reported less opportunity to spend time in the types of spaces (clubs, university accommodation) and events (parties, festivals) where ATS could be more easily accessed.

I think a lot of that experimentation happened at the parties that I wasn't at. (ATS43, G6-non-user, female).

This meant that exposure was infrequent and less normalised (Measham, Newcombe, & Parker, 1994). Most non-using interviewees expressed a level of fear about the effects of ATS as well as concern for the long-term impact that use might have on their health, particularly possible contraindications with existing health conditions. Whilst a couple of participants expressed curiosity about ATS, most reported a number of potentially protective factors influencing turning points at potential initiation (employment, secure housing, stable relationships and family) which resulted in low motivation to use ATS.

It just almost reminded me, why I wouldn't ever want to be like that, sort of out of control of themselves. (ATS42, G6-non-user, female)

Continued and increased ATS use

There was a degree of blurring between what constituted continued as opposed to increased ATS use, and participants often found it challenging to differentiate between these phases with accuracy. Reasons for continued use centred on sustained positive experiences of consuming ATS and pleasurable feelings:

... you do kind of get euphoric and just start, like, hugging everyone and stuff. (ATS33, G3-frequent, male)

... it's not like you need it, it's more that it'll put the icing on the cake, at events or an occasion. (ATS33, G3-frequent, male)

Other reasons for continued usage centred on a person's need to consume ATS to self-medicate worsening mental ill-health, often compounded by the challenges experienced in managing everyday responsibilities such as childcare and household chores in a time of austerity.

I was still taking it, and doing all the cleaning and that, I wasn't drinking at this point, I was just taking the amphetamine to get through my day, it was just to get through my day. (ATS05, G2-remitted, female)

I know what makes me feel better. I think that life is pretty hard for us. Everybody in here ... I think life is so hard. (ATS07, G1-dependent, female)

At the same time, whilst the need to self-medicate mental ill-health was often linked to continued ATS consumption, some participants reported increased paranoia and erratic behaviour being caused by sustained use, along with a loss of appetite and frequent insomnia. This subgroup of participants expressed difficulty experiencing and understanding their own and other people's emotions. As a result, ATS use was continued by some to generate artificially positive feelings, as this participant explains:

Folk take it to hide their feelings, to cover up stuff, just to make themselves feel better because when you're on drugs, you're on top of the world. Nothing can hurt you, you feel invincible [...] All your feelings are like, numb. So you don't feel depressed or anything. (AT16, G1-dependent, female)

However, participants mostly reported that mental, and physical health complications started to emerge more prominently with increased (as opposed to continued) levels of ATS use. Increased use, as a turning point, was most marked when something critical occurred (unemployment, child removal) in their life:

I couldn't get a job, and stuff like that. Obviously I'd been doing amphetamines for a couple of years. Things got really intense for me and I couldn't focus and stuff like that. I, sort of, got into crime instead. Yes, I went a bit crazy. (ATS70, G1-Dependent, male)

I handed him over when he was three [...] I was back on amphetamine, and I was taking it every morning to get through my day. (ATS05, G2-remitted, female)

Once the level and/or frequency of consumption started to escalate, users described experiencing feelings of depression, anxiety and paranoia, which were intensified once

the effects of ATS wore off (leading to renewed dosage). This prompted some to stop using ATS, often for short periods which was framed more as ‘detoxing’, and often intentionally resulted in relapse:

I was at home for the summer, I felt ... when I finished uni, I was like, “A nice three month break” ... So it didn’t stop really at all. It was crazy times. But after that, second year I took it weekly, if a DJ was on or anything like that. (ATS18, G1-Dependent, male)

With higher and more frequent usage of ATS, the bonds within a person’s social network became both more unstable and more explicitly focused on drug use:

If you’ve always got money and loads of drugs, people tolerate a lot. Sometimes, if ended up arguing with my friends, I would just get a bit over the top. I would just- sort of, wild threats and threats of violence. (ATS01, G4-ex-frequent, male)

Clear differences between user groups emerged in how participants described negotiating drug use within friendships and relationships. For example, participants who were screened as frequent, non-dependent, formerly frequent, or non-frequent users reported ways that they would discretely manage their use of ecstasy around non-using friends when clubbing or at parties or festivals together to maintain these friendships, as well as to avoid sanctions. In contrast, a number of participants screened as dependent or remitted users talked about how their social networks were viewed increasingly as a means of accessing ATS rather than based on meaningful relationships or friendships. Some participants who were not ready to stop or decrease their usage, reported trying to distance themselves from family and friends who were non-users so that they could avoid being challenged or criticised for their substance use:

I just said, “No, you can’t search my pockets.” She went, “Why not?” I said, “Listen, I’m an adult. You can’t be searching my pockets.” and I was like, “Right, I’m off.” I went to see the person I was getting the drugs from and said, “Listen, I’ve been kicked out. I need somewhere to live.” (ATS1, G4-ex-frequent, male)

Decreased ATS use

Participants who used mainly ecstasy for ‘hedonistic’ purposes tended to describe desistance as a gradual turning point, shaped primarily by individual factors such as emotional stability, growing older, and taking pleasure from other interests. Social factors such as disconnecting with previous social networks and expanding non-using networks, acquiring more domestic responsibilities, and environmental factors, such as new employment and greater financial security, and fear of being involved in the criminal justice system, also meant that participants felt much less motivated to use ATS. Generally, these participants tended to be future-orientated individuals focused on achieving aims and goals:

I’d rather have done it and got it out of the way and now I know. Now I know what my aims are and what my goals are. (ATS25, G5-infrequent, male)

In contrast, participants whose amphetamine usage was shaped by individual factors relating to self-medicating deleterious mental health, and/or for functional purposes (managing increased domestic or employment responsibilities), discussed desistance as a

sharper turning point, often occurring as a result of a critical life event, such as being imprisoned or arrested, becoming homeless, or unemployed.

That's when it became really clear to me that – going to jail homeless full of drugs, that's going to be my life probably for the next ten years. Or I can sort myself out and just do the best I can. (ATS02, G2-remitted, male)

Desistance was also prompted by family or peer intervention, the drug-related death of a close friend, or having a child removed by social services. Individual factors relating to serious physical and mental ill-health, identifying having 'hit rock bottom', or becoming pregnant, were also cited as reasons to stop using ATS.

It's broke my marriage up and everything. It's not nice. It's split the family up really. I've had breakdowns and everything and I've been in hospital a few times. Sends me crazy [...] I was in hospital just gone November. That's what's made me stop. (ATS34, G1-dependent, female)

Desistance was difficult to maintain for many participants, especially those experiencing multiple co-occurring individual, social and environmental stressors, such as unstable housing, unemployment, domestic violence, childcare, and declining mental health. Some women reported periods of abstinence during pregnancy but relapsed once their child was born. For others, whilst having a child removed from their care prompted desistance, this was difficult to maintain without support from outside services.

Those that reported more successful abstinence found focusing on fitness activities, renewing hobbies and personal interests to be effective strategies. These activities helped these participants to find purpose and meaning in their lives, as well as raising their self-esteem, improving confidence and helping them to feel valued. Yet the most important social factor in maintaining desistance seemed to be the capacity to remove oneself from ATS using networks, and to build non-using social networks.

I do not want people like that in my life anymore. (ATS13, G4-ex-frequent, female)

Abstinence could also be protected if other people using ATS were supportive of an individual's decision to desist, meaning ATS were not sold to or shared with the person.

However, changing social networks was difficult for many participants who still lived and worked in the same location where they had used previously, or for those who had family members who still used. A number of these individuals had high levels of social anxiety and low social capital; they found it challenging to build social networks outside of substance using interactions, choosing instead to isolate themselves from contact with people, including support services. Many participants lived in deprived communities and located their experiences as anchored in social and economic insecurity. These circumstances challenged their ability to remain abstinent as they expressed that 'they've got nothing else' (ATS32, G5-infrequent, male).

Participants expressed low awareness of how to access drug treatment services and saw this a further obstacle to desistance as a critical turning point. Whilst some reported seeking medical assistance from their general practitioner to address the growing severity of their health problems, ATS use was seldom discussed in these moments. When ATS use was mentioned, it was usually alongside other complex mental and physical health needs, and other substance use, particularly alcohol and heroin:

I've been to the doctors all my life with them, so they know sort of thing. And I've been on anti-depressants. [...] the recovery clinic on the [anonymised], even before this happened, I was going in like wrecked, full of tablets, drink. (ATS36, G2-remitted, female)

Some participants had accessed specialist services for alcohol and/or heroin dependency, and had unrealistic expectations for ATS treatment, wanting rapid results or a prescription to assist with dependency. Others felt that treatment services were not sufficiently focused on ATS use, and there was a general perception that treatment services were more readily available for other substances such as alcohol, cannabis and/or heroin use. As such, some felt that it was futile to seek support from services for ATS; instead these people would try and manage their usage themselves:

You just get on with it, don't you? You've got to. It's pointless asking these to do anything. You might as well just do it yourself. (ATS10, G1-dependent, female)

Others were deterred from seeking help for their ATS use, even at critical moments of ill-health, because of their anxiety about having it formally 'on the records'. Participants were particularly concerned about the impact this could have on their family unity, particularly where children were concerned.

Once I actually took myself to hospital because I felt I'd had that much ... and I thought I was going to die ... I'm thinking, "I can't die, I've got a daughter. I've got a daughter." And it's all I couldn't get out of my head and I took myself to A&E and I calmed myself down a bit. I didn't go in because I thought, "It's going to be on the records and all that." (ATS46, female-G4)

Discussion

This research highlights the heterogeneity of people who use ATS and is distinctive compared to other studies which have allied ATS use to nightclubs and parties (Bahora, Sterk, & Elifson, 2009; Measham et al., 1994). Participants in this study included single mothers, university students, professionals, ex-offenders, and homeless individuals. With such a diverse sample population, it follows that our participants described varied journeys and multiple, complex non-binary turning points (Schinkel, 2019) in their use of ATS over time, and during a socio-political context of austerity (Advisory Council on the Misuse of Drugs, 2017).

Within our interviewees, we were able to identify certain groups of people using ATS whose consumption was influenced by factors already highlighted in the existing drug use literature (Ersche et al., 2013; Glasner-Edwards et al., 2010). For example, we found that for MDMA and/or mephedrone users, motivation tended to centre on individual factors like pleasure, experimentation and curiosity, as well as factors linked to social cohesion solidified through networks and relationships. We framed this as 'hedonist' usage, which we acknowledge is a morally contentious term by some academics (Caruana, Glozer, & Eckhardt, 2019; Wakeman, 2016). Yet the concept of 'hedonism' nevertheless conveys how these participants were focused on positive outcomes of ATS use and the cementing of social networks, legitimated through 'self-managing' strategies (Caruana et al., 2019). This group tended to recover from and 'mature out' of using ATS (Levy, Arria, O'Grady, & Wish, 2005), as they accrued additional responsibilities (employment, children, partner), meaningful activities (Best et al., 2016), and the perceived health, legal and financial risks associated with ATS were foregrounded and became allied with critical

turning points out of ATS use. However, it is worth emphasising that these turning points were complex, and had both positive and negative features for participants living during austerity and cuts to services (Advisory Council on the Misuse of Drugs, 2017; Nagelhout et al., 2017). Nevertheless, they presented features of stability and connection which sustained desistance and changes in identity through recovery (Best et al., 2016). Importantly, such users reported few long-lasting health or social problems.

We also identified hidden populations of unknown amphetamine users, who were generally motivated to use for functional reasons to do with improving performance and productivity at work or in the home, or for self-medication purposes to cope with declining mental health issues. They reported ATS use that was both higher in volume, and greater in frequency than the other groups, and was often sustained over the longer-term, alongside other licit and illicit substances. This pattern of heavy end consumption was linked to turning points with more negative features including risky behaviour, family breakdown, loss of social connections, and persistent criminal activity (European Monitoring Centre for Drugs and Drug Addiction, 2018). However, individuals demonstrated low awareness regarding the long-term harms of heavy ATS use or the risk of overdose. The combination of depressants (particularly alcohol and opioids) and ATS was common in this subgroup, and is worth exploring further in future research, given the increased risk of harm and drug-related mortality.

Many of the people using amphetamine described above were ‘unknown’ to health and social care services. Some heavy end users were injecting amphetamine and were not ready to access support to reduce or stop their usage, interpreting their usage (as well allied risks) more positively (Dwyer & Moore, 2013). Our findings demonstrated these individuals had specialist needs and potential health benefits to be accrued linked to the design of needle exchanges and harm reduction information. Elsewhere, other people using heavily who were not injecting wanted to access treatment but did not know how to do so, and/or felt that services prioritised alcohol and opioids over stimulants.

Declining mental health was linked to long-term amphetamine use by many of these individuals (see also Duff & Moore, 2015; Fast, Kerr, Wood, & Small, 2014). Initiation was discussed through various turning points prompted by mental ill-health linked to relationship breakdown, child removal, unemployment, trauma, domestic violence, and sexual abuse (Public Health England, 2017; Shapiro & Daly, 2017). These individuals often increased their ATS usage very rapidly to a high frequency and dosage, meaning that any positive benefits they accrued through using amphetamine at initiation were eroded. Prolonged heavy use exacerbated mental health issues: some participants reported increasing levels of social anxiety leading in some cases to violence; whilst others were diagnosed with severe depression, and some experienced intense feelings of loneliness and isolation (Public Health England, 2017). A number of female participants reported using ATS to self-medicate their undiagnosed pre- and post-natal depression, an area of mental health and substance use, which remains under-researched (Haight, Carter-Black, & Sheridan, 2009). Many of these people experiencing mental ill-health expressed reluctance to access support services out of fear of how it might affect their current circumstances, such as risking child removal, eviction, and/or relationship breakdown. Instead, they preferred to continue their hidden use of amphetamine as a means of managing both their mental health and their challenging life experiences.

These complex turning points have important implications for both policy and practice during a time of austerity and cuts to services (European Monitoring Centre for Drugs and Drug Addiction, 2018). The UK guidelines on clinical management of drug dependence indicate that there is currently no medication based treatment for problematic amphetamine use and advises deploying generalist psychosocial interventions (Clinical Guidelines on Drug Misuse and Dependence Update 2017 Independent Expert Working Group, 2017). Firstly, there is a general lack of priority given to ATS by both people who use and providers, which can make it difficult to identify problematic ATS use in standard treatment settings. As such, assessment of substance use by specialist service providers should include a greater focus on ATS use, with responses tailored to the specific needs of ATS/poly-substance use. For example, in certain areas needle exchanges may not be properly set up for people injecting ATS, who may need to use several times a day. Secondly, ATS consumption is associated with increased risky behaviour, which provides an opportunity for sexual health services and the criminal justice system to identify and address problematic use. At the same time, amphetamine use often flies under the radar, with existing data confirming that few people are presenting to traditional drug use services (Shapiro & Daly, 2017). 'Hidden' populations in our study were not accessing support services but were still experiencing drug-related harms. Thus thirdly, alternative delivery settings and out-reach programmes (e.g. obstetrics, social care, inclusion, children's services, mental health teams, domestic violence teams) would benefit from an increased focus on ATS use (Public Health England, 2017) and the accrual of positive benefits from recovery (Advisory Council on the Misuse of Drugs, 2017). It may be that a multi-agency approach model, deploying comprehensive assessment of ATS, would be a useful starting point.

Whilst there is a recognised need for more effective prevention and treatment services for ATS use, promising examples exist. In other research, Klee et al., conducted a longitudinal study of amphetamine use and treatment access in the North West of England (Klee, Wright, & Morris, 1999). They found that half the participants were able to stop using street amphetamine, with diverse life events such as the loss of social relationships and access to their children, as well as deteriorating mental health and suicidal ideation, prompting engagement with treatment. Those able to sustain recovery tended to be women who had not previously injected amphetamine. Factors associated with abstaining and recovery included resilience and strengthened coping mechanisms, non-using social networks, and engagement with treatment. Crucial to success in treatment was professional experience with targeted interventions (Wright & Klee, 1999). Future research to develop and evaluate interventions designed to improve coping abilities and resilience at key turning points, and targeted at preventing harmful amphetamine use from developing into critical dependent use, is thus of high importance (Klee et al., 1999; Minozzi et al., 2016; Wright & Klee, 2000).

Strengths and limitations

The strengths of this research lie in the diversity of characteristics in our sample of participants, allowing for in-depth exploration of varied ATS use pathways. However, our sample was ethnically homogenous (majority White British). Further, whilst we attempted recruitment via regional organisations representing lesbian, gay, bisexual, transgender, queer (or questioning), and intersex (LGBTQI) communities, there was limited

participation through these avenues due to service closures and cutbacks. Substance use was based on participants' self-reporting type and frequency. Researchers took steps to hold interviews in a place that was comfortable to the participant, to invite an advocate or gatekeeper to attend the interview, and to maintain neutral and non-judgemental behaviour throughout.

Conclusions

We identified heterogeneous use of ATS across the sample driven by individual, social and environmental factors at complex turning points during a time of austerity, and cuts to service provision. Most ecstasy users were socially connected, and often matured out of substance use once they accrued familial and economic responsibilities. In contrast, many individuals using amphetamine took ATS for functional and self-medicating purposes, and reported more hazardous patterns of consumption, often alongside alcohol, benzodiazepines and opioids. Going forward, there is a clear need for services to understand diversity in this population and provide harm reduction interventions aimed at the critical turning points grounded in events such as having a child removed from parental care, or seeking support for increased use of alcohol or heroin (European Monitoring Centre for Drugs and Drug Addiction, 2018; Klee, Wright, Carnwath, & Merrill, 2001; Minozzi et al., 2016; Public Health England, 2017).

The challenge for policymakers is that amphetamine use is varied regarding user types, multiple and complex non-binary turning points, and patterns of consumption. Identifying individuals using ATS who are not currently accessing health and social care services is challenging and may require a multi-agency approach foregrounding mental health.

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Ethics statement

Ethical approval was granted by Newcastle University, Faculty of Medical Sciences, Ethics Committee (REF: 01204/2016) on 8 September 2016. Project Steering group met bi-annually from the beginning of this study (Sept 2017).

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